THE Chemist

JANUARY, 1947 VOLUME XXIV, No. 1

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The Chemist

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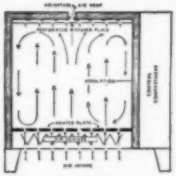

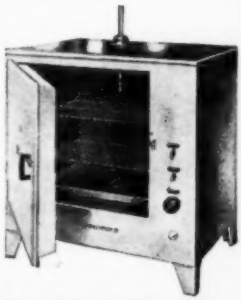

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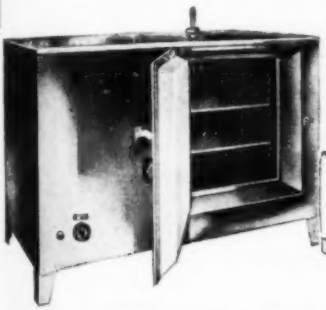

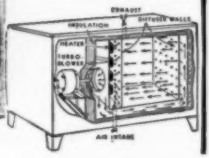

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Coalition Proposed for the A. I. C. and the American Chemical Society

The following letter with ballot has been sent to every member of THE AMERICAN INSTITUTE OF CHEMISTS

To: Fellows, Members, and Associates of The American Institute of Chemists

This is to be taken as a personal letter addressed to you in regard to our Institute.

Some of us have felt for a long time that effort was being wasted in competitive activities between the AIC and the ACS. What we of the Institute are trying to accomplish is that which will be best for the profession of chemistry and the economic standing of chemists. What the ACS is primarily trying to accomplish is to represent the science of chemistry in the United States.

One way of accomplishing more would be for each organization to confine activities strictly to a carefully delimited field. Another would be to combine the two activities within one organization. Careful consideration has indicated that the combination of activities would be more desirable, if only because it would give the backing of a larger number of members to such activities in each direction, that is scientific and professional.

Accordingly, a coalition of the two societies was proposed and after some preliminary planning, has received very detailed consideration. It has been taken through the following steps.

1. Meeting of Robert J. Moore, Frederick Hessel, Lloyd Van Doren and Foster D. Snell on behalf of the Institute on July 26, 1946. Unanimously approved.

2. Consideration by Roger Adams, Charles Thomas, and Alden Emery on behalf of the ACS. Approved.

3. Consideration by the Council of the AIC on July 30, 1946. Approved subject to details.

4. Consideration by the Board of Directors of the ACS about September 8, 1946. Approved subject to details.

5. Meeting of joint committee of AIC and ACS, consisting of the following: E. R. Weidlein, Albert L. Elder, W. A. Noyes, Jr., Howard S. Neiman, Joseph W. E. Harrisson, Foster D. Snell on October 18, 1946. The plan indicated herein was arrived at and unanimously approved.

6. Resubmission to the Council of

the AIC on November 7, 1946. Approved.

7. Resubmission to the Board of Directors of the ACS on December 13, 1946. Approved.

8. Resubmission to the Council of the AIC on December 17, 1946. Approved.

The plan in its present form, which may be subject to some modification as required to clarify details not yet finally settled, is as follows.

The Plan

The American Institute of Chemists was formed in 1923 to serve the professional interests of chemists. The American Chemical Society also is active in this field. It is illogical that two separate groups should be working independently and duplicating effort in attempting to accomplish the same objectives.

Therefore, it is proposed that the AIC become the professional division of the ACS in the hope that, as a constituent part of the larger organization, it can accomplish more for the profession than it can as a separate and independent unit.

The term "professional division" while describing accurately the functions of this new unit, is considered objectionable and carries an undesirable negative connotation for the members of the Society who do not enroll in the group. Tentatively the name "The Institute of the American Chemical Society" is proposed as the designation for this division.

The Institute would take over and enlarge the functions of the Committee on Professional and Economic Status.

The Institute would sponsor a program at each national meeting, exactly as other divisions do and similar to those heretofore arranged at intervals by the Committee on Professional and Economic Status. It would hold one separate meeting each year for discussion of professional subjects, comparable to a divisional symposium. It would sponsor and guide such meetings as local sections might wish to arrange for consideration of these matters.

The new division would have two grades of membership in order to emphasize professional accomplishment. Present "'fellows" of the AIC would become the initial "members" of the Division. Under the Constitution of the AIC, they have shown completion of "six years of collegiate and postgraduate work in chemistry or chemical engineering, at least two years of which training must be of an advanced nature . . . and an additional five years of progressive experience and responsibility . . ." Equal or higher qualifications would be set in the bylaws of the division for those who join subsequent to creation of this unit. In addition, any member of the ACS who does not meet these requirements could enroll in the division as an "associate."

Most fellows and members of the AIC are presently members of the ACS. However, if not members, fellows of the Institute who desired would become members of the ACS and its Institute. Members and associates of the AIC, not members of the ACS, may become members in the latter and associates of the Institute division, their grade of membership in the ACS to be determined by the Membership Committee of the ACS.

Neither the AIC nor the ACS assumes any new financial obligations in this consolidation. The Institute will assess dues, as do other divisions, which will make it self-supporting.

It is the hope of those who have developed this plan that consolidation of the two programs will (1) eliminate duplication of effort, (2) permit better coordination of activities, and (3) increase influence, thereby leading to (a) an extension program, (b) greater effectiveness, and (c) enlarged support as evidenced by enrollment in the division, all of which should result in (A) more accomplishment and (B) lower unit cost to divisional members (the latter cannot be achieved immediately).

At this time there is attached a ballot on which you are requested to indicate your approval or disapproval of the plan in principal, with the understanding that some details remain to be decided and thereafter will require approval of your Council. It provides for comments. It need not be signed. A postage-paid envelope is enclosed for your convenience. The balloting is for the information of your Council. If a substantial majority of the membership favors the plan, it is then contemplated to put it into effect as of the end of the Institute's year, May 1st.

I believe that under the plan more can be accomplished for the professional standing and economic status of the chemist. Its effect is for your Institute to take over the present professional activities of the ACS and operate them as the Institute of the American Chemical Society.

Sincerely yours,

(*signed*) FOSTER D. SNELL

M. L. Crossley Awarded A.I.C. Gold Medal

Dr. M.L. Crossley, F.A.I.C., has been unanimously chosen to receive the 1947 Gold Medal of THE AMERICAN INSTITUTE OF CHEMISTS, not only for his scientific work and leadership in research leading to discoveries in the fields of dyes and pharmaceuticals, but also for his activities in behalf of the profession of chemist. The presentation will be made at the Annual Meeting of the Institute, to be held, Friday, May 2, 1947, at the Hotel Commodore, New York. N. Y.

Sparks Becomes Director

Dr. William J. Sparks, F.A.I.C., associate research director, Standard Oil Development Company, has been named director of the Chemical Division of Esso Laboratories, Standard Oil Development Company, Linden, N. J. Dr. Sparks replaces Dr. Per K. Frolich, who has resigned. Dr. Sparks has been actively associated with the development of Butyl rubber.

Appleton with Commercial and Industrial Products

Martin D. Appleton, F.A.I.C. is now director of production and research with Commercial and Industrial Products Company, Childs, Lakawanna County, Pennsylvania. He was formerly with Nuodex Products Company, Elizabeth, N.J.

Dr. Harry N. Holmes, F.A.I.C. addressed the Virginia Polytechnic Institute Science Club and the Virginia Blue Ridge Section of the American Chemical Society, on November 14th, at Virginia Polytechnic Institute, Blacksburg, Virginia. His subject was, "Recent Advances with Vitamin C."

Corporation Formed

Dr. Johan Bjorksten, F. A. I. C., owner of Bjorksten Laboratories, Chicago, Illinois, announces that the corporation, Bjorksten Research Laboratories, is being formed to continue the business of Bjorksten Laboratories.

Choppin Elected Commander

Dr. Arthur R. Choppin, F.A.I.C., dean, College of Chemistry and Physics, Louisiana State University, has been elected commander of the Louisiana Department of the American Legion.

Dr. Albert F. Guiteras, F.A.I.C., research director of Foster D. Snell, Inc., Brooklyn, N. Y., has been elected president of the New York Professional Chapter of Alpha Chi Sigma.

Dr. Milton Burton, F.A.I.C., spoke at a meeting of the Virginia Blue Ridge Section of the American Chemical Society, held December 21st at Salem, Virginia, on "Atomic Energy and Radiation Chemistry." Dr. Burton, now professor at the University of Notre Dame, recently served with the Manhattan Project at the University of Chicago and the Clinton Laboratories at Oak Ridge, Tennessee.

Dr. Donald Price, F.A.I.C., spoke on November eighth, before a joint meeting of the American Electroplaters Society and THE AMERICAN INSTITUTE OF CHEMISTS, at the Engineers' Club, Dayton, Ohio. His subject was, "The Chemistry of Wetting Agents," and included their application to the plating field. A lively discussion period followed the talk.

The Expanding Responsibilities of the Scientist

Walter J. Murphy, F.A.I.C.

Editor, Industrial and Engineering Chemistry

A condensation of a talk given before the Federation of Paint, Varnish, and Production Clubs, November Meeting, Atlantic City, N. J.

THE origin of gunpowder is lost in antiquity. Its composition appears to have been known to the Hindus when Moses walked on this earth. Through the Arabs, the knowledge of gunpowder may have been brought from the East to Europe. Certain historians insist that the discovery belongs to the Chinese, but are unable to fix the period with certainty. The discovery has been attributed to Schwartz, a German monk and alchemist of the 14th century, and also to Roger Bacon, who described it in his writings about 1270.

At least we know that sometime in the dim past a chemist discovered that a simple mixture of saltpeter, charcoal, and sulfur, possesses explosive properties and that, at a somewhat later date, an individual with mechanical ingenuity produced a crude apparatus that utilized the explosive properties of gunpowder to propel a missile. At that very moment there was consummated an unholy wedlock between science and the base instincts of man, a tragic union for both parties, for it resulted in great unhappiness to the scientist and it permitted diabolically inclined persons to strive for and often attain great power, thereby creating untold misery.

Scientists never have been happy about this alliance. Indeed they prefer a monogamous association with the finer instincts of man, yet for a thousand years or more the achievements of men endowed with special scientific inquisitiveness have been prostituted again and again by individuals imbued with an insatiable lust for temporal power. Early scientists, though richly blessed with mental prowess, were unable to control the end-use of the products from their labors, so that they could reserve them exclusively for the physical, mental, and moral betterment of mankind. Can we, or the other thousands of our fellow scientists throughout the world make the assertion that we have improved over our predecessors' ability to dictate more surely the final application of the materials we make available? We must admit frankly that we have failed, just as our predecessors failed.

The quarter of a century between

the world wars saw the greatest scientific fruition in the world's history. These advances, which promised so much for man's welfare, were turned into terrible destructive-dealing forces. For a decade or more before World War II, German scientists contributed many noteworthy scientific achievements. Hitler seized these, firm in the belief that they were instruments by which he could enslave the world. The scientists of this and other countries then had no alternative but to direct their activities into war research to prevent, not only the loss of their own freedom, but the freedom of their fellow-beings.

We Must Choose

Again we are at the crossroads. The atomic age has created a servant who will be equally obedient to mankind or to the Angel of Death. Once more we, all mankind, have the choice of one of two alternatives—peace or war. These alternatives are clearer today than ever before.

Five atomic bombs have been detonated. The mystery of the power contained in atomic nuclei has been solved. The stark reality of this achievement when finally assimilated beggars description. I, with forty-three thousand-odd individuals, witnessed Operations Crossroads at Bikini this summer. It was frightening. It was terrifying. It was a preview of the world's destruction, unless the cataclysmic explosions of the history-making atomic bombs are more than matched by super-cataclysmic-explosions in man's thinking and reasoning.

Thousands upon thousands of human beings are condemning scientists, forgetting that it is not science that begets war, but the selfishness and willful desires of individuals and even whole nations. The men and women of science are largely powerless to prevent this prostitution until mankind generally learns to live without resorting to war as a means of adjudicating or resolving differences.

The inevitable penalty that the scientist pays for his traditional and outmoded isolation in his ivory tower strikes home when the burden of the creation of atomic bombs, biological means of human destruction, guided missiles, and other instruments of war, is heavy upon us, and the destiny of the future hangs on the policy decisions which this and other nations must make in the next few months. Our comparatively airy isolation is no solace, when, in our efforts to contribute to these decisions. we sometimes only flail the thin air helplessly. Now we are earnestly seeking the basis of common understanding with our fellow man so that our exertions may be effective.

Two of our many responsibilities as scientists are to see that mankind is educated to understand that we and our contributions are not the cause of war, and to show mankind that science has advanced to a point

where further resort to war means almost surely the complete annihilation of civilization. Should the world resolve itself into two equally powerful armed camps, each equipped with all of the existing instruments for war, plus many more yet unknown but of greater potential destructiveness, then any clash between these two camps may not end until both are practically destroyed. The inevitable result will set back civilization thousands of years.

Research has reached the heights that it has achieved largely because it has been free and unfettered, at least during the intervals between wars. This is particularly true of pure or fundamental research which is the basis of all scientific advance.

The decisions that will be made in the near future by the United Nations Organization will chart a course for research that we, as scientists, cannot ignore. Research will be free or it will be chained in nationalistic dungeons for decades, depending upon whether the world can agree to accept wholeheartedly the philosophy embodied in the term "One World." If it refuses, or if such a decision is thrust upon it by a few misguided and willful leaders, then the repository of scientific reports will be, not the scientific journals of the world, but the vaults of hundreds of Fort Knox's. Free exchange of research data will be stopped. Research will be restricted, channeled, and compartmentalized into narrow fields. Today, war is so utterly dependant upon science that only the complete elimination of the former can longer guarantee the complete freedom of the latter.

This picture is not exaggerated. Every scientist, every young student of the sciences, and many thoughtful individuals who are not within the scientific fold, understand what it will mean to the world's future if science is forced to go underground; if it is divided and separated by nationalistic and geographical boundaries; if it is directed at the top by the military in each country; if each worker is permitted to know but part of the whole, and if research projects are selected primarily on the basis of military considerations. Again, we as scientists have a grave duty to perform. We must see that the lay public in every country of the world, not only becomes acquainted with these facts, but interprets them correctly.

Scientists Asked to Participate

The world is at the crossroads, but the hour of the fateful decision is not far off. While political leaders debate at Paris and in New York, every country of prominence in world affairs is engaged in making preparations for an armament race of unprecedented magnitude. Science and scientists are to play the important roles but will not direct the show.

The situation is not without a bright, indeed, a promising side. For

the first time in history, scientists have been asked to participate in matters concerning the future of the world, even though in relatively minor capacities. Civilian control of atomic energy at the national level is assured after a tough struggle, a victory secured largely because scientists became articulate. The United States has presented a plan for the control of atomic energy at the international level that is, with some slight modifications, acceptable to most, if not all the nations of the world. Representatives are gathered together at this moment considering this and other proposals designed to eliminate future war.

The present plans in this country for strengthening our defenses, and our huge appropriations for research for the Army and Navy are necessary until such time as it is plainly evident that the world's leaders can reach just and lasting settlements. But we, and all the right-thinking peoples of the world, will remain uneasy, plainly worried, until we discern tangible evidences of the erection of a world-peace structure mounted on a firm, rock-like foundation, and in addition, a sizable diminution of military preparedness spearheaded by military-dominated research.

To say that we as scientists are plainly worried is a gross understatement. Practically every technical and scientific journal has editorialized on the subject, and leading scientists the world over are voicing their views.

Sir Henry Dale, noted British scientist and president of the Royal Institution, speaking before the National Academy of Sciences recently, revived the idea of a world-wide agreement on the part of all universities and professors not to carry on research under military secrecy. This plan could only be effective, however, if it is world-wide, and if its base is broadened to include not only fundamental science but applied research as well. It is a well-known fact that the unwelcome links which bind warfare and science are stronger and of greater significance in applied and industrial research than they are in the fundamental sciences.

International Science

Revival of the various international scientific unions, such as the International Union of Pure and Applied Chemistry, and the meeting in Paris of the United Nations' Educational, Scientific, and Cultural Organization (UNESCO) offer great opportunities for bringing together the scientists of the world. No nation, or any group of nations, should absent themselves from these deliberations and more than lip service should be given to the plea for the establishment of effective means for organizing the scientists of the world into bodies whose pronouncements will carry weight with statesmen and political leaders in all countries. We have asserted proudly that science is in-

ternational, that it knows no national or geographical boundaries. That statement was true to a limited extent in the past. It will not be true in the future, unless the international pattern for governing the peoples of the world is designed to meet the requirements of a new and revolutionary age. The statement now is meaningless, for research has been nationalized and regimented during the years of war and the chains that bind it are only being broken slowly. They will be replaced and reinforced with others of still greater strength should the day arrive when nations and leaders of nations, abandoning all hope of complete agreement, trust, and mutual understanding, retreat once more, confused and distraught, under the non-protective shells of isolationism.

Fundamental Research

Turning from international to national matters, the subject of fundamental research deserves comment. The dramatic story of the atom bomb brings home to informed Americans the startling and disturbing fact that a large proportion of the advances in pure or fundamental research, not only in physics, but in biology, chemistry, medicine, and in practically every scientific field, has been made by citizens of other countries.

A comparison of the United States with any one other country indicates that we have played a significant role in the forward march of science, but when the rest of the world is lumped together, the contributions in pure science from our research institutions compare unfavorably in number with the total reported in the scientific journals devoted to the fundamental sciences.

There are several reasons why the United States lags in fundamental research and excels in the practical application of basic scientific principles. One is that we have failed to make fundamental r e s e a r c h attractive enough, monetarily, and in other ways, to obtain sufficient numbers of scientists who will labor in it. We pride ourselves on our liberality, yet we have failed to support fundamental research as we should and must in the future. No longer can we depend in a large measure on the scientists of other nations and particularly on German scientists. The former stream of research in the fundamental sciences pouring out of German universities and institutes will be a mere trickle for years to come.

Whether the future history of the world is one of permanent peace or frequent and violent struggles, our duty is plain. A world of peace will look to us to make contributions in pure and fundamental research in proportion to our prestige, wealth, and the scientific brainpower with which we are endowed. A world of isolationism will see our applied and industrial research wither and die, if we fail to assume leadership.

Who will finance the necessary expansion in our fundamental research? For the most part the money must come from government. This is why it is so important that all plans for a national science foundation proposed in Congress, probably at the next session, must be scrutinized carefully by scientists to make certain that the final legislation is in the interest of a free and untrammeled science, and that scientists are not made the servants of the politicians and bureaucrats.

The Education of Scientists

Along with the support of fundamental science, there must be liberal provisions made for the support of capable and deserving young men and women who ultimately will staff the institutions where fundamental research is carried on. Four walls, a roof, and an impressive array of apparatus have never given birth to even one new scientific fact or phenomenon. Brainpower of the highest order is the prime essential. That will be available only by combing the country for potential candidates and then providing them with the finest of facilities available. You know how we have wasted the scientific talent of this country during the war period; how our leaders stubbornly refused to permit renewal of that talent when they denuded the scientific colleges and universities of students. Today much the same conditions exist. It is true that our schools are crowded with students, largely returned G.I.'s, but only a fraction of these are expected to continue their studies to the master or doctorate level. It is in the graduate groups that we must seek those unique and rare individuals — fundamental scientists. This is one problem of utmost importance to the country, yet it is only sketchily known and none too well appreciated. The scientist must assume the role of educator.

Scientists have a special stake in the subject of education and, therefore, should have a special interest in the kind of scientific training provided by the colleges and universities. Practically every field of industrial endeavor is now dependent, and will be increasingly so, upon the type and character, training and abilities of the chemists and chemical engineers produced by our colleges and universities.

Today the scientific teaching staffs of most of our colleges and universities are undermanned and underpaid. Industry has weened away many of the most capable teachers through the simple means of making highly attractive offers. I do not advocate lower salaries in industrial research—I do advocate that we find some means to raise the salaries of our teaching staffs. I sincerely hope that we do not fall back on but one solution, which is to offer teachers additional compensation for conducting applied research. Within reasonable limits this is a partial solution. I would

prefer to see our teachers, and the research institutions which are springing up, many connected with colleges and universities, devote most of their activities to the fundamental aspects of science, leaving to others the field of industrial research. The well of fundamental research is running dry; we have taxed it to capacity during the recent war period. Some one must replenish it, and while government through a science foundation must assume primary responsibility, our colleges and research institutes should not desert fundamental research, despite immediate monetary temptation. Unfortunately to many it offers at least the one chance of survival.

These conditions should be the concern of all scientists. In state and municipal-owned institutions the method of correcting the situation is obvious—educate those who control the purse strings. Admittedly this is not easy, but the scientist does not hesitate to accept problems of a complex technical nature. Why hesitate here? Private institutions must be assisted in other ways.

Industry, perhaps even more than individual scientists, has a direct stake in the end-product of our schools and colleges. Industry must consider very seriously ways of raising funds to provide better incomes for young instructors, assistants, and associate professors. This must be done without delay, for many of our privately endowed institutions are now losing ground rapidly in this inflationary period. Scientists and industrialists can meet on a common ground in their efforts to find a solution to this problem.

The Scientist's Individuality

One question ranks high in the minds of many scientists, particularly the younger individuals, for it concerns them in a very personal way. We are living in troublesome, distracting, and above all, uncertain times. Should we be surprised, therefore, that many of the younger and some of the older members of the scientific professions are bewildered, perplexed and torn between two philosophies—one that might be called "rugged individualism", the other a form of collectivism. Some scientists question the wisdom of adhering to the former, when on the surface at least the latter appears to be quite alluring. Security today is one of the most potent factors controlling most men's reasoning. Accompanying the desire for security, is a demand for greater professional recognition, wider opportunities, greater monetary reward, and particularly an insistence that the valuable researcher be rewarded in the same manner as the successful executive and administrator.

One of the prinicpal difficulties that arises in such discussion is the almost universal habit of citing generalizations and then calling upon specific examples to prove such contentions.

One can usually find a plethora of examples to prove anything. We are too prone to think in terms of THE scientist. There is no such thing as THE scientist or "the average scientist." No two individuals who are members of a given profession are exactly identical in training, experience, temperament, ambition, initiative, creativeness, individualism, leadership, perception, and persistence. I might add that no two have exactly the same degree of luck. Rarely are two scientists doing exactly the same work. Science does not lend itself to production-line assembly treatment. Scientists vary widely in their degree of conservatism or, to put it in another way, their willingness to gamble, to take a chance. No two possess the same degree of acceptance of responsibility.

The extroverts and the introverts among us are such only to certain degrees which vary in intensity with each individual. Men work and are inspired to achieve success for many reasons, although the majority place monetary reward at the top, or close to it, and rightfully so. One can look at the problem from a long-range point of view or a short one; one can view it objectively or with a narrow attitude that is affected by purely personal reasons; the beginner often sees the picture differently from the veteran; the analyses made by the not-too-successful are not likely to coincide with the conclusions of those who have achieved success.

The older and the successful members of the scientific professions must realize that they are responsible for the training and welfare of the younger members. Unless the successful members assume more leadership and provide proper encouragement and guidance, they will discover that others alien to the profession have stepped into their shoes.

The Scientist as Executive

Those who play a dual role, that of both scientist and executive, must exhibit a strong interest in the welfare of those whom they direct and in the profession as a whole. This double allegiance is not inconsistent with right thinking. We have a great many outstanding examples of such individuals in the chemical profession. This must be equally true of the other scientific professions. We need many more such men and women. In twenty-five years, I have seen quite a transformation in the make-up of top-flight management in the chemical profession. Today, many scientifically trained individuals fill executive posts and sit on corporation boards. Such positions call for unselfishness, boldness, and vision. Those who hold them can either strengthen or destroy the philosophy which has inspired scientists in the past. The influence of such executives is a most constructive force.

Much has been said about the role of the scientist in political, social,

and economic matters. Scientists have been told that they must come down from their "ivory towers" and must assume greater responsibilities in the life of the community. No one can disagree with this proposal, but no unanimity exists among scientists as to the degree to which they should devote themselves to non-scientific problems. Certainly if scientists become full-time politicians in large numbers, the world will fare badly. Our prime responsibility still is that of providing new goods and new services.

The Scientist Serves Humanity

Too few scientists realize the seriousness of many of the conditions that face the world of tomorrow. The greatest hope of bringing the have-nots to the level of the have's is the scientist. The politician's solution all too frequently brings the level of the have's to that of the have-nots.

In the not too distant future, the world will be brought face to face with the stark reality that there is not sufficient food to feed a population that is expanding at a tremendous rate despite two world wars. The world supply of many natural raw materials, particularly minerals and petroleum, will not last forever. The scientist must continue diligently in his search for substitutes and replacements if the world is to go forward; if war is to be eliminated; and if a higher standard of living is to be developed.

Spectacular advancements have been made in the fields of medicine, surgery, and in the prevention and control of diseases, but we lack cures for cancer, tuberculosis, polio, many forms of heart disease, and even the common cold. Scientists have made great strides in the control of harmful and dangerous insects and pests. Today we know, or at least a select few know, how to produce an atomic bomb, but we are merely on the threshold of knowledge concerning potential peacetime uses of nuclear fission and the by-products resulting from such reactions. With these challenges and others still before us, can we desert the "ivory tower" of science entirely for the political arena?

Somewhere between these extremes, lies the path that we should select, if we are to make the maximum contribution to the welfare of mankind consistent with our training, experience and abilities. It is wise to re-investigate the purpose of science and the goals which we seek to achieve.

Perkin medallist, Gaston F. DuBois, has summarized what in his opinion should be our objectives:

> "Our ultimate goal is not science, just for science's sake, our goal is a higher degree of culture and civilization. We should realize that science is not the measure of civilization—science and technology are merely tools not ends

in themselves. To be a value to man's progress, science must be blended with something far more important, something difficult to define, something which develops solely in the minds of men and as the results of experience.

"Science must be blended with a recognition of moral principles and these principles must be properly applied. Therefore, if scientists and technologists are to play a greater part in the world of tomorrow, they must accept wider responsibilities which will take them out of their laboratories and plants and into the life of the nation. Do we, the technicians of the world, fully recognize these applications? If so, what are we doing to meet them, how will we apply this torrent of new knowledge?"

I do not believe that Mr. DuBois is suggesting that we desert the laboratory and the plant, rather I believe he advocates a well-rounded interest on the part of the scientist in science, in politics, in economics, in the civilian life of the nation and the world at large.

Some feel that the only salvation is to turn over the world's direction and operation to the scientists. This is impossible and improbable for many reasons that are obvious. What we must seek is integrated partnership between scientist, politician, and civilian in which each understands, supports, and supplements the other.

Scientists Must Assume Leadership

The comfortable illusion that the scientist can work in the laboratory with his back to the social and political world has been shattered forever. The scientist is expanding his interests. The process is often painful but a small price to pay, if scientists thereby grow to a long overdue mamaturity of real leadership. We must walk before we can leap. We are naive in many respects. We, who have in the aggregate shown little desire or ability to lead large masses of people, cannot expect to assume or be given positions of great responsibilities until we have proven to our fellow citizens that we are successful scientists and inspiring leaders as well. Most of us are at the bottom of the ladder in this respect, but many are ready to attempt the ascent. A few feel that the advent of the atomic age entitles them to a favored position on the uppermost rung of the ladder.

We can and must become leaders in fields other than science, but we can only achieve success in the political and cultural life of the nation the hard way—the same way our present leaders reached pre-eminence. When we decide to make the sacrifice entailed, then will we assume our rightful place in human society. To do that we should teach others to understand science and we should show

them in turn that we understand and can cope with their every-day problems.

Three months before the first atomic bomb was detonated over the sands of New Mexico, Secretary Robert P. Patterson said,

> "There is a great voice in the world today, the voice of science and technology. It is a voice heard since ancient times, but never until today has it spoken with such authority, have its words been so filled with promises, has it been listened to with such hope. And in no country in the world does the voice speak as eloquently as in our own."

Mr. Patterson refers to the voice of science and technology, not the voices of scientists and technologists. A wide chasm exists between the two. When the scientist does speak, may he always do so with dignity and a high degree of objectivity. The one great contribution that we as scientists can make to deliberations of any kind is the scientific approach that we employ in our chosen field of endeavor. We do not always employ this approach when we are involved in non-scientific, particularly controversial, matters.

The world can be made a much happier place if we assert more vigorously our right to be heard. The scientifically trained will substitute for an inherited predatory way of life an unlimited capacity to produce for all the peoples of the earth.

When the scientist has the courage to face the future and to assume these greater responsibilities, he will make it possible for the peoples of the earth, whom he has brought physically so close together, to live constructively while sharing the abundance which scientific skill has developed.

For scientists to believe these truths and yet to fail to adopt them in a practical manner, means physical, social, cultural and moral bankruptcy for millions of human beings now alive and for countless generations yet to come.

The task of building a new world out of the ashes of the old constitutes a glorious challenge. Scientists, despite all of their talents and abilities, may not be able to save the world from destruction, but the possibility that the world may destroy itself is much greater, if scientists decide to remain in the "ivory tower."

W. B. Newkirk, F. A. I. C., formerly assistant general manager, Chemical Division, Corn Products Refining Company, Argo, Illinois, is now technical advisor, Manufacturing Department, in charge of Refineries, of that company, at 333 N. Michigan Avenue, Chicago, Illinois.

Cooke With Visking Corp.

Dr. Lloyd M. Cooke, F. A. I. C., formerly with Corn Products Refining Company, Argo, Illinois, is now with the Visking Corporation, 6733 West 65th St., Chicago 38, Illinois.

The Fuel Problems of Europe

Dr. Gustav Egloff, F.A.I.C.

Universal Oil Products Company

A report of a talk by Dr. Egloff, who recently returned from a trip to the Scandinavian countries, before a joint meeting of the Miami Valley Chapter, A.I.C., the Dayton Section, A.C.S., and the Dayton Society of Professional Engineers.

THE general conditions in the states of England, Norway, and Denmark contrast sharply with the oasis of plenty found in Sweden with its many new research laboratories which are heavily endowed.

The shortage of coal in England is so serious that railroads and industries are being converted to oil burning. In Denmark, the porcelain industry, which was at one time the most outstanding in the world, is practically non-existent. The research laboratories of Norway have been cut off from scientific publications for over five years. These laboratories from which some of the greatest scientific discoveries have come are suffering today from a lack of new knowledge. It is of interest that a research foundation established in Denmark in 1875 by J. C. Jacobsen, owner of the famous Carlsberg breweries, made possible research work on the atomic bomb which preceded some of the work done in the United States. Through Niels Bohr, the United States was informed of the experiments which the Germans were conducting on heavy water. This information was helpful in accelerating our program for the successful manufacture of the A bomb.

Many of the Swedish laboratories are located in pleasant surroundings away from the plants. They have done beautiful work on diesel engines, gas turbines, jet propulsion and much fundamental research related to industry. Their industries have grown to include metals, steel, alloys, wood pulp, paper, and electrical equipment.

The only large domestic supply of fuel is wood. It is also the basic manufacturing material for pulp, paper, and rayon production. The ethyl alcohol from sulfite liquor in wood processing is mixed fifty per cent with gasoline for use as motor fuel; it is also dehydrated to ethylene which gives rise to many derivatives such as dichlorethylene, trichlorethylene, and chemicals for synthetic rubber.

To meet these manufacturing demands and fuel requirements during pre-war times, 8,000,000 cubic meters of wood were used annually. With coal and petroleum imports cut off during the war, wood consumption

rose to seven or eight times that amount. Sweden was entirely dependent on wood, peat bogs, oil shale deposits, and a few coal mines within her borders for all types of fuel requirements.

Automotive transport was almost entirely converted to run on producer gas. In 1942, the total number of road vehicles still operating was 79,526 with 72,755 of these running on producer gas. The fuel requirements for gas producers in 1942 was 2,500,000 cubic meters of charcoal and 2,000,000 cubic meters of wood along with some dried peat.

Other products from wood which were utilized to supply the motor fuel deficiency during the war were ethyl alcohol made from the fermentation of sulfite liquor, and methyl alcohol and wood tar obtained from wood distillation. The normal prewar production of alcohol in Sweden was around 26,000 metric tons, of which 18,000 was used in motor fuel. At this time the alcohol production was used in the national drink (Aquavit), as motor fuel, and as a source of ethylene for chemical manufacture.

By 1942, the output of alcohol in Sweden had more than doubled, and by 1945 was three times the prewar output. In July 1942, the Swedish Board of Fuels was forced to release a portion of gasoline in storage for use in such services as ambulances, fire engines, and police cars, where speed was necessary. The Board decreed, however, that engines in vehicles used for these services should use two standardized fuels, one containing 50 per cent alcohol and the other 85 per cent, the rest being gasoline. Proposals were made to use unblended alcohol but it was found to affect engines adversely because of the presence of acetic acid.

Since the end of the war, in the transition period, a fuel consisting of 25 per cent alcohol and 75 per cent domestic shale oil was sold at about 85 cents per gallon, but this offered little inducement to consumers who preferred to await the resumption of gasoline marketing at about 30 cents per gallon. During the summer of 1946, 15 per cent of alcohol was still being blended with gasoline.

Tar oils from wood carbonization were ultilized both as heavy engine fuels and as lubricants. Tar best suited for engine fuel was that obtained from pine wood and its principal use was in farm tractors and fishing boat engines. In some cases the tar oil was used in admixture with alcohols to decrease viscosity.

Peat production was stepped up to increase supplies for general heating requirements as well as for gas producer motor vehicles. The production of this fuel was about 25,000 tons annually at the beginning of the war but rose to 700,000 tons by 1942. This production corresponded in fuel value to about 350,000 tons of coal, a not inconsiderable quan-

tity for Sweden. A government corporation was formed to manufacture peat briquets and stimulate production from state owned properties. Peat was also used as a powder and peat coke was available for many purposes. The production of peat served particularly to supplement fuels for domestic heating.

Other motor fuel sources utilized during the war included limited quantities of methane, acetylene, illuminating gas, and benzol. The Stockholm city sewage plant produced methane gas in an amount equivalent to about 500 gallons of gasoline daily. This gas was used in the engines of buses and motor vehicles in the city of Stockholm. On May 1, 1941, there were 686 vehicles in Sweden propelled by acetylene, methane, or illuminating gas. Eighty-eight vehicles were electrically-driven. A small amount of benzol recovered as a by-product of coal carbonization was used but since the amount is dependent to a large extent upon coal imports, this use is not likely to increase.

Of high importance to Sweden's fuel economy are her oil shale deposits. Four plants using four different processes have been built to produce oil from shale at a cost of about $25,000,000. About one-half million tons of shale are processed each year to yield approximately 700,000 barrels of oil.

Perhaps the most interesting process is the Ljungström electrothermic. A hole is dug in a bed of shale and electrical resistance wires are inserted to heat the shale *in situ* and the vapors are collected. The product differs from that of the other processes and contains less unsaturates. In order to heat up the ground to distillation temperature, 1500 of these units were operated for three months in a bed of fifty feet of shale. The ground then produced oil for two months before the beds were spent. It will take thirty years for the ground to cool off. This artificially heated ground is being used for agricultural experimentation. One of the products successfully grown is a tomato several times the size of the ordinary specimen. One may predict that these principles will be used to bring about a man-made tropical climate in the colder latitudes. Areas which are at present covered with ice and snow throughout most of the year may be producing two crops per season in the future.

The cost of producing oil from shale is considerably higher than from petroleum. Sweden now has two refineries operating for this purpose at the present time, and the processes are operating at a loss. However, the government expects to make the oil shale industry profitable through the utilization of by-products. Among the by-products that have been obtained are uranium oxide, alumina, silica, and potassium. From recovery

of hydrogen sulfide gas, 22,000 tons of high quality sulfur are now obtained yearly. The government also plans to use spent shale in building materials. Sweden is spending large sums on research and development of these processes.

Sweden is now rapidly converting to a postwar economy. Her fuel requirements are increasingly being met by imports of petroleum and petroleum products since the prospects of increased imports of coal are poor. In fact, coal seems to be scarcer at the present time than during the war and it is felt that prices will remain high for a long time. Many Swedish industries are making provision for changing from wood, peat and coal to fuel oil. Sweden consumed only 1,500,000 barrels of fuel oil yearly, in domestic heating and in industry, before the war. It is now estimated that 3,225,000 barrels were consumed in 1946. The Swedish government is aiding in the conversion to oil by providing equipment priorities.

Sweden is alive to the advantages of using petroleum products and will undoubtedly import far greater volumes than those of the pre-war years. Crude petroleum will be needed for the operation of the present and contemplated refineries; and refined products, including gasoline, kerosene, furnace oil, and fuel oil, will be required to supplement the products of home refining. Increasing use of petroleum will occur in industrial plants, in the heating of homes and buildings, and as fuel in motor driven vehicles, trains, and ships.

Necrology

Walter L. Blackhall

Walter L. Blackhall, director of the Central Testing Laboratory of the New York City Department of Purchase died at his home on October 25, 1946.

Born in Troy, New York, Mr. Blackhall was graduated from Rensselaer Polytechnic of that city with a degree in civil engineering. Since 1914, he had been connected with the Central Testing Laboratory, now located at 480 Canal St., New York, N. Y., and for the past five years was its director.

Mr. Blackhall was a member of the Technical Association of the Pulp and Paper Industry, the American Association of Textile Chemists and Colorists, the American Chemical Society, and the New York State Society of Professional Engineers. He became a Fellow of The American Institute of Chemists in 1929.

Walter Gerald Karr

Dr. Walter Gerald Karr, director of the research laboratories of Smith, Kline and French Laboratories, Philadelphia, Penna., died September 16th of a heart attack while motoring to Almond, New York, to make ar-

rangements for his mother's funeral.

He was born in Almond, New York, in 1892 and studied at Alfred College, the University of Illinois and Yale University, from which he received the Ph.D. degree. He was with the Pennsylvania General Hospital as biochemist, chemist, and metabolic chemist, from 1921 to 1933, and from 1931 to 1940 he was chemist with the Abington Memorial Hospital. He was chemist with the University of Pennsylvania Hospital from 1933 to 1943; also visiting biochemist to the Philadelphia General Hospital and chemist to the Bryn Mawr Hospital.

From 1940 to 1946 he was consulting chemist to Abington Memorial Hospital, to Bryn Mawr Hospital, and also director of the research laboratories of Smith, Kline and French. He served as assistant professor of physiological chemistry at the University of Pennsylvania. He was the author of a number of papers on pharmaceutical and chemical biochemistry, and he belonged to sixteen scientific associations, He became a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in March of 1946.

Henry M. Harff

Henry M. Harff, technical director, Standard Brands, Inc., died October 7th at the age of sixty-one. Mr. Harff who was born in Bonn, Germany, received a degree from Bonn University. For fourteen years after he was graduated from the University, Mr. Harff worked as a chemist for the German Government. He then came to the United States in 1924, and began work with the Chicago-Pekin Branch of Standard Brands, Inc. He was a member of The American Chemical Society. He became a Fellow of THE AMERICAN INSTITUTE OF CHEMISTS in 1945.

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Merck Establishes Fellowships

Merck and Company, Inc., Rahway, New Jersey, has established a fund of $100,000 with the National Academy of Sciences for fellowships in natural science. These fellowships are available to U. S. citizens who have attained the Ph.D. degree, and who have unusual ability for experimental research. The funds will be administered by the National Research Council, with individual grants ranging from $2,500 to $5,000.

Brooklyn College, Bedford Avenue and Avenue H, Brooklyn 10, N.Y., announces five courses in chemistry to be started in February in the Graduate School. These include advanced synthetic organic chemistry laboratory, physico-organic chemistry, advanced biochemistry, advanced physical chemistry laboratory, and colloid chemistry.

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New York

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Secretary-treasurer, Leon W. Seigle
824 Palmer Rd. Bronxville 8, N. Y.
Council representative, L. H. Flett

The Chapter met at Number 2 Park Avenue, New York, N. Y., on October 25th. Dr. James O. Clayton, senior research chemist, California Research Corporation, Richmond, California, spoke on "Lubricants", including the reasons why lubricants deteriorate, and the additives which may be used to improve them. Dr. Frederick D. Rossini, chief of the Section on Thermochemistry and Hydrocarbons; supervisor of the A.P.I. Research projects 6 and 44, National Bureau of Standards, Washington, D. C. spoke on "Petroleum". This paper was issued by the National Bureau of Standards, October 31, 1946, as "Report on Hydrocarbons in Petroleum", a summary of the work of the American Petroleum Institute Research Project 6. Copies may be requested from Dr. Rossini, National Bureau of Standards, Washington, D. C.

Miami Valley

Chairman, George F. Deebel

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The Lowe Brothers Company
436 East Third Street, Dayton, Ohio

Assistant Secretary, Miss Jacqueline Front

Representative to the National Council, Edgar W. Fasig

The Chapter met November 20th jointly with the Dayton Society of Professional Engineers and the Dayton Section of The American Chemical Society, at the Engineers' Club, Dayton. Dr. Gustav Egloff, F.A.I.C., spoke on "Industry in the Scandinavian Countries."

At a business meeting on October 23rd, the Chapter elected the officers shown above.

Pennsylvania

Chairman, Francis C. Huber *Vice-chairman,* Harold Tucker

Secretary-treasurer, Kenneth E. Shull

Philadelphia Suburban Water Company
762 Lancaster Avenue, Bryn Mawr, Penna.

Council Representative, John M. McIlavin

News Reporter to THE CHEMIST, John H. Staub

The first meeting of the season was held October third, at the Engineers' Club, Philadelphia, preceded by an informal dinner.

Dr. Francis C. Huber, chairman, presided. Dr. Foster D. Snell, president, A.I.C., spoke on "'Chemistry as a Profession."

Dr. Snell brought out several points to clarify the professional as-

pect of chemistry. The A.I.C. represents the professional aspect of chemistry in the United States. Chemistry as a science has gone much further than medicine, but as a profession not as far.

The confusion about the professional aspect of chemistry concerns professional status and economic standards. Professional status deals with the recognition of the importance of the chemists in the world, while economic status deals with remuneration. These two are not related. Professional recognition will not bring any more money to the chemist immediately, but in the future it might.

Dr. Snell discussed the subject of licensing and advocated permissive licensing, i.e. a license obtained by those who want to demonstrate to public authority that they are qualified to practice chemistry; a privilege to those who want it.

Among the accomplishments of the A.I.C. during the past year were: (1) Studied and published "Employer-Employee Relationships Report." (2) The Committee on Contracts published its report. (3) Recommended three of those chosen as observers for Bikini. (4) Awarded a gold medal to Dr. R.P. Russell in recognition of war research. (5) Started a study of the economic status of the chemist.

Niagara

Chairman, F. L. R. Sievenpiper *Vice-chairman,* Wallace M. Hazel

Secretary-treasurer, Oliver M. Morgan

64 Northledge Drive

Snyder 21, N. Y.

Chapter Representative, James Ogilvie

The Chapter met on December fourth with Dr. Foster D. Snell, president, A.I.C., as speaker. His address was entitled, "Chemistry—a Profession."

Prior to World War I, chemistry occupied a relatively unimportant category in this country and was considered more in terms of art and manipulations than as a profession. In reality, the chemist has made more progress since the days of the alchemist than the medical man has since the days of blood-letting. Within our lifetime by the stimulation of two world wars, we are seeing chemistry grow into a true profession. We can aid in this growth by furthering education in the professional status of our field, and most particularly by remembering and living up to our code of ethics, which is held in very high regard by those familiar with it.

Although Webster's dictionary classes chemistry as a profession, it is not classed as a learned profession in the same category with medicine and law. There is a fine distinction here

which is largely one of licensing.

Dr. Snell advocated permissive or voluntary licensing and pointed out that when it comes to licensing it should be "of chemists, by chemists," so that there is no danger of unnecessary impositions upon the licensees. It was pointed out that no state in the country has yet approved the licensing of chemists, but that legislation to this end is in the formative stage in several states.

Western Pennsylvania

Chairman, J.H.F. Veltman *Vice-Chairman,* M.F. Dull
Secretary-treasurer, H.R. McGraw
Mellon Institute of Industrial Research
4400 Fifth Avenue, Pittsburgh 13, Penna.
Council Representative, L.V. Clark

The chapter met at Mellon Institute, November 26th, to elect officers. The new officers listed above were elected. Following the business meeting, Dr. Warner W. Carlson, F. A. I. C., of the Department of Pure Research, Mellon Institute, gave an excellent talk on "Detoxification of Drugs by Hydroxy-Alkylation."

The Belgian chamber of commerce in the United States, Inc., 50 Rockefeller Plaza, New York 20, N. Y., has begun publication of a new monthly magazine, *Belgian Review,* covering trends in trade and tourism between the United States, Belgium and the Belgian Congo. Its Volume I, Number 1, dated October 1946, features "Free to Live—Free to Trade in Global Prosperity and Peace", an interview with Baron Robert Silvercruys, Belgian ambassador to the United States. It is distributed to members of the Belgian Chamber of Commerce, and sold on subscription ($2.00) to American educators.

Oil and Soap has changed its name, beginning with the January, 1947, issue, to *Journal of the American Oil Chemists' Society.* Publication offices are at 35 E. Wacker Drive, Chicago, Illinois.

For Your Library

SCIENTISTS AGAINST TIME. By James Phinney Baxter, 3rd. *Little, Brown and Company*. 1946. 473 pp. 5½" x8¼". $5.00.

This is the official story of the organization and achievements of the Office of Scientific Research and Development, from its inception in June, 1940, to the end of World War II. More than 6000 scientists worked in industrial, university, and other laboratories under OSRD, to contribute outstanding accomplishments which in a period of six short years (with the contributions of other research groups not the subject of this book) brought our pathetically inadequate scientific facilities for warfare up to the highest standards known. Among these great accomplishments are: Radar and loran, radar countermeasures, rockets, propellants, incendiaries, flame throwers, the proximity fuze, mine detectors, devices of all kinds, antimalarials, insecticides, rodenticides, the blood-supply services, and the mass production of penicillin; with the atomic bomb as a climax of impressiveness.

This popularly-written book is exciting reading. Throughout, one has the impression of time rapidly slipping by, while scientists frantically rush to perform the tests, experiments, development, and field trials necessary before a new device can be adjudged satisfactory for actual combat use. One is conscious that "haste makes waste" and that scientific projects require time for maturity. The strongest impression of all is that such scientific work should be done long before a nation is fighting for its life; desperately needing things not yet invented, while scientists are hurriedly being assembled to achieve miracles. Miracles they did achieve, some of them completed too late to be of use in the war, and they cannot be given too much credit for these successful projects.

This book should be widely read for an appreciation of the work of these scientists, the problems which they faced, and the organization of the scientific projects. The actual scientific information is thin and scattered. Only a complete index makes it possible to trace out some information on any one accomplishment, and that is less revealing than the material contained in the usual press release on a new war development. A hasty reading of some paragraphs may give a wrong impression because of tricky wording, rather than inaccurate statement. Perhaps the factual scientific material is intended to be reserved for future publication. In the meantime, this book lifts the dark curtain of secrecy that shrouded the activities and organization of the OSRD scientists during the war, and it reveals how greatly the nation is indebted to its men of science.

INORGANIC SYNTHESES. Vol. II. W. C. Fernelius, Editor-in-Chief. *McGraw-Hill Book Company, Inc.* 293 pp. 6" x 9". $4.00.

The Second Volume of this series is very welcome since it shows promise that the series will continue and in time fill as important a place as does *Organic Syntheses*.

The present volume contains a total of eighty-one preparations ranging over the periodic table. In all cases, the directions are clear and unequivocal, and following the plan of *Organic Syntheses* have been checked by a person or persons other than the submitter. The format of the book is good in paper quality, type style, and where required, illustrations. The most notable omissions are the names of suppliers of commercial quality material which can be purified readily according to instructions given in the book.

The reviewer feels that a few pages could usefully be devoted to special laboratory technics which are generally applicable. There is an appendix entitled "Notes on the Nomenclature of Inorganic Compounds." This is included because of the plan to make the indexes of successive volumes cumulative and to avoid inconsistencies. However, those of us, who learned the beginnings of our chemistry a generation or more ago, find it is a slight mental strain to recognize Potassium Cobalticyanide under the name of Potassium Hexacyanocobaltate (III).

One can become accustomed to almost any minor hardship, however, and in toto, the usefulness of the book as a ready reference for authoritative methods of inorganic preparations compensates many times over for the trivial inadequacies. The reviewer recommends the book for the library of any chemist working in the field, or interested in inorganic research, or in teaching.

—*Karl M. Herstein, F.A.I.C.*

FOODS THEIR VALUE AND MANAGEMENT. Henry C. Sherman, *Columbia University Press.* 221 pp. 5½" x 8½". $3.25.

This book is interestingly and scientifically written, one which could be used by the dietician, laboratory worker, college teacher of chemistry and foods, or by the intelligent lay person. It contains a number of immediately usable tables, an extensive, up-to-date bibliography, and an excellent index.

The book is divided into twelve chapters: The first, "'Modern Views of Food Supply," emphasizes that food can be used not only to promote good will between nations, but between people of widely different income levels in the same nation. Food economics is viewed both from the raising of the crop and its food value and the substitution of one crop for another.

Foods are classified into ten groups

with a chapter devoted to the consideration of each group. A summary, "Toward Fuller Appreciation," or "Status and Outlook" closes each of the chapters. A final chapter on "Adjustment Problems," discusses the wiser use of the first seven food groups with the hope that they may be shared with peoples abroad, reserving the last three groups, namely; milk and the more bulky fresh fruits and vegetables for home consumption.

The author severely criticizes the excessive use of grain and pasturage for the making of choice or prime beef when "Good" is good enough. He believes the public can be educated in the sharing of foods, and that, with the present scientific knowledge of nutrition put into action, malnutrition can be eradicated from America.

—*Ora Blanche Burright, F.A.I.C.*

Organic Syntheses. Vol. 26. H. Adkins editor. *John Wiley and Sons, Inc.*, 124 pp. 6" x 9¼". $2.25.

This is another volume of the excellent series of satisfactory methods for the preparation of organic chemicals. It continues the accumulation of detailed experimental data in a scientific manner. An index of Volumes 20 through 26 maintains the continuity. In addition to the organic reactions, this volume contains a description of the production of ozone and palladium catalysts.

Addresses Wanted

Addresses of the following members of THE AMERICAN INSTITUTE OF CHEMISTS are missing. It will be deeply appreciated, if anyone knowing the present addresses of these chemists will send them to the Secretary of THE AMERICAN INSTITUTE OF CHEMISTS, 60 East 42nd Street, New York 17, N.Y.

Anderson, Eleanor G., 811 Michigan Avenue, Urbana, Illinois.

Bull, Major George G., 310 Hyde Park Boulevard, Chicago, Illinois.

Cooke, William D., 3708 Spruce Street, Philadelphia, Penna.

Craig, John J., 913 Morningside Drive, Jeffersonville, Indiana.

Diwoky. Captain Fred F., Chemical Warfare Service, 7 Linnet Street, West Roxbury, Mass.

Hawes, Lt. Commander William W., 3852 Calvers Street, N.W. Washington, D.C.

Kahn, Gloria C., 2401 Jackson St., San Francisco, California.

Ross, John, Colgate Palmolive Peet Company, 105 Hudson Street, Jersey City, N. J.

Shea, Thomas Emmett, Jr., U. S. Public Health Service, National Institute of Health, Bethesda, Maryland.

"Man of Science," article in November issue *Science Illustrated* is a personality sketch of Dr. Willard H. Dow, F.A.I.C.

"Unfinished Business in American Education—An Inventory of Public School Expenditures in the United States", by John K. Norton of Teachers College, Columbia University, and Eugene S. Lawler of Northwestern University. $1.00. May be obtained from the American Council on Education, 744 Jackson Place, Washington 6, D. C.

Chemical Condensates

Ed. F. Degering, F.A.I.C.

The work done by a relatively few men with uranium changed the course of scientific history and perhaps the history of the world. This was basic research which cost a few hundred thousand dollars at most, and no one who started on it could have forseen its revolutionary outcome. This is the important point.

On the other hand, applied research and development and production which were required for the atomic bomb (and which cost two billion dollars) were aimed at a very definite target. Such work, unlike basic research, can be planned in advance and yields to a mass attack.

—*James Bryant Conant*

Synthetic folic acid, according to reports from Dr. Tom D. Spies of the University of Cincinnati, stimulates the production of red blood cells in macrocytic anemia.

Commercial Solvents will produce anhydrous ammonia from natural gas at the recently acquired Dixie Ordnance Plant at Sterlington, Louisiana.

Small gardens in Malaya produce fifty to seventy-five tons of derris monthly as a source of rotenone.

The addition of methionine spurs the growth of rats on a protein deficient diet.

Civil Service Examination

The U.S. Civil Service Commission announces a new "Chemist" examination for positions in Washington, D. C. and vicinity. Salaries range from $7,102 to $9,975. Application forms may be obtained from first and second class post offices; the Commission's regional offices, or from the U. S. Civil Service Commission, Washington 25, D. C.

New College Seeks Staff

Farragut College and Technical Institute, Farragut, Idaho, which opened in October, seeks personnel with practical experience to conduct courses which fit the needs of students, professions, business, and industry. Instructors, assistant professors, and professors are needed in various fields, including chemistry, physics, mathematics, meteorology, and home economics. Positions are open for the winter quarter starting January second, and for subsequent quarters. The potential capacity of the college is 15,000 students. Salaries depend upon ability, training, and experience. J. H. Kusner is president.

Chemists Available

Director, small organic research laboratory, seeks new connections. M.Sc. plus additional year of graduate study. Minor in Physical. Also successful teacher. Microscopist. Married. 47. Please reply to Box 12, THE CHEMIST.

Research and Control Chemist. B.S. degree. 38. Married. Experienced in manufacture of soaps, detergents, dry-cleaning products, textile chemicals, and fats and oil processing to produce fatty acids. Interested only in a chemical supervisory position which will offer me the opportunity to advance to executive class. Present salary $5460. Please reply to Box 10, THE CHEMIST.

Industrial Research Laboratories of the United States (8th Edition) is now ready for distribution. A comparison with the preceding volume, issued in 1940, shows an increase in each professional classification, with chemists increasing 34.4 per cent. This directory is available from the Publications Office, National Research Council, 2101 Constitution Avenue, Washington 25, D. C., at $5.00 per copy.

Dr. R. P. Dinsmore, F.A.I.C., vice president of Goodyear Tire and Rubber Company, announces that Dr. L. B. Sebrell has been appointed director of research and chemical products development of the company. Dr. Sebrell joined Goodyear in 1929.

Louis N. Markwood, F.A.I.C., economic analyst of the Bureau of Foreign and Domestic Commerce, Washington, D. C., attended the convention of the National Association of Insecticide and Disinfectant Manufacturers in New York during the week of December second. He recently published an article in *Domestic Commerce* (11079) on "The Aerosol—Something New in Insecticides". The aerosol was developed by scientists in the U. S. Department of Agriculture.

Dr. B.D. Van Evera, F.A.I.C., executive officer, Chemistry Department, The George Washington Univeristy, has been appointed coordinator of scientific activities of that university.

Name Misspelled

I wish to bring to your attention an error in the spelling of my last name in the October CHEMIST under the listing of "Members" on page 400. Please note that my last name is *Wangner*.

—*Philip F. Wangner, Jr., M.A.I.C.*

A.I.C. Council Meetings

Meetings of the National Council of THE AMERICAN INSTITUTE OF CHEMISTS are held on the third Tuesday of each month, at six o'clock p.m. in The Chemists' Club, 52 East 41st Street, New York, N. Y. Dates for the current season are:

January 21, 1947
February 18, 1947
March 18, 1947
April 15, 1947
May (Annual Meeting)
June 17, 1947

Meeting Dates

JAN. 22nd—Washington Chapter, A.I.C. Speaker to be announced.

JAN. 23rd—Miami Valley Chapter, A.I.C. Speaker, Professor James R. Withrow, F.A.I.C., Ohio State University. "Our Predicament in the World Today."

JAN 23rd—New York Chapter A.I.C. 26th Floor, No. 2 Park Avenue, New York, N. Y.

FEB. 6th—Pennsylvania Chapter, A. I.C. Engineers' Club, 1317 Spruce Street, Philadelphia. Speaker Dr. Max Seaton, executive vice president, Westvaco Chlorine Products Corporation. "Chemicals From the Sea."

FEB. 7th—Chicago Chapter, A.I.C. The Electric Club, 20 North Wacker Drive, Chicago, Ill. Speaker, Dr. H. E. Robinson, assistant director of research, Swift and Company. ""Can Research Be Managed?" Make reservations with Mary Alexander, HArrison 9690.

MAR. 6th—Pennsylvania Chapter, A. I. C. Engineers' Club, 1317 Spruce Street, Philadelphia. Speaker, George C. Collins, manager, Marketing Research Department, Pennsylvania Salt Manufacturing Company. "Marketing Surveys."

MAR 21st—New York Chapter, A.I.C. 26th Floor, No. 2 Park Avenue, New York, N. Y. Speaker to be announced.

APR. 3rd—Pennsylvania Chapter, A. I.C. Engineers' Club, 1317 Spruce Street, Philadelphia. Speaker, J. C. Geniesse or C. H. Van Hartesveldt, Research and Development Department, Atlantic Refining Company. "Petroleum Fuels and Lubricants."

MAY—Pennsylvania Chapter, A.I. C. Plant trip. (To be announced).

MAY 2nd—Annual Meeting, the American Institute of Chemists. Hotel Commodore, New York, N. Y. Medal award to Dr. M.L. Crossley, F.A.I.C.

MAY 9th—New York Chapter, A.I.C. 26th Floor, No. 2 Park Avenue, New York, N. Y. Speaker to be announced.

JUNE—Pennsylvania Chapter, A.I. C. Outing. (To be announced).

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